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13. ABSTRACT (Meximum 200 words)

The equipment bought under this project is used to study the reliability of devices fabricated on SIMOX substrates. SIMOX $\,$ (separation-by-implantation-of-oxygen)material is used primarily for low power IC application. The reliability of devices fabricated on SIMOX substrates is influenced by oxide degradation due to charge trapping, interface state generation, and bulk trap generation in SIMOX.

19980824 021 15. NUMBER OF PAGES 14. SUBJECT TERMS 16. PRICE CODE SECURITY CLASSIFICATION OF ABSTRACT 20. LIMITATION OF ABSTRACT SECURITY CLASSIFICATION OF THIS PAGE 17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED UNCLASSIFIED UNCLASSIFIED Standard Form 298 (Rev. 2-89) rescribed by ANSI Std. 239-18 NSN 7540-01-280-5500

FINAL TECHNICAL REPORT ON SIMOX EVALUATION PROGRAM (Grant #F49620-97-0516)

Submitted to
AIR FORCE OFFICE OF SCIENTIFIC RESEARCH /NE
110 Duncan Avenue Room B115
Bolling AFB DC 20332-8050

BY

Dr. Tarak Bhar
Dept. of Arch. Engr. and Tech.
University of the District of Columbia
4200 Connecticut Avenue NW
Washington DC 20008

FINAL TECHNICAL REPORT ON SIMOX EVALUATION PROGRAM

Period Covered: 15 July 1997- 14 March 1998 (including two months extension)

A. The "SIMOX (separation-by-implantation-of-oxygen) Evaluation Program" funded by AFOSR/NE is intended for acquistion of scientific equipment to do research on the evaluation of SIMOX material by avalanche injection technique. Due to unavoidable circumstances in the DC government approval process (Exhibit 1), the specified period of the project was extended for an additional two months ending on 14 March 1998

B. The following is a list of equipment acquired under the project:

1. Keithly Instruments Inc. (Exhibit 2) C/O Technical Representatives

PO Box 5176

Cleveland, OH 44190

Date of Order: 02/17/98

Equipment bought:	Cost:
1 Model 82 Win C-V System	\$28,722.99
1 Model 237 SMU	5,756.40
1 Test Point Software Package	895.50
1 Model 7001 80 Channel Switch System	1,705.50
1 Model 7153 4X5 H/V Low Current Matrix Card	2,308.50
2 Model 7153 TR X Low Noise Cable	1,215.00
4 237-BNC-TRX3 Lug Female Triax to Male BNC Adapter	342.00
Subtotal:	\$40,945.89

2. Manufacturer: Hewlett Packard Company (Exhibit 3) 2101 Gaither Road Rockville, MD 20850

Date of Order: 02/14/98

Equipment bought:		Cost:
1 Model 3245A Function Generator		\$4,545.00
1 Option 002 10 X High Voltage Amplifier		_1,431.00
	Subtotal:	\$5,976.00

2. Manufacturer: COMP USA (Exhibit 4)

8357 Leesburg Pike Vienna, VA 22182

Date of Purchase: 03/13/98

Equipment bought:		Cost:
1 HP 8275 PII 300 48/8 Computer		\$1,924.97
1 HP 17.28 M70 MM Monitor		624.97
1 HP Deskjet 722C		274.97
1 CUSA CBL Gold IEEE #128V		34.99
1 PNY 32 MB SDRAM		129.99
	Subtotal	\$2 989 89

Subtotal. \$\psi_2,707.07

Total: \$49,911.78

C. The following is a list of changes to the equipment listed in the proposal:

Model 5958 Software	1	237 High Voltage SMU
Model 6157 Electrometer	is replaced by	Test Point Software Package
Model 7058 Switch Card		7153 Matrix Card
(All from Keithly Insts)		7153 Low Noise Cable
• /		237 Female to Male Adapter
		(All from Keithley Insts)

D. The equipment bought under this project is used to study the reliability of devices fabricated on SIMOX substrates. SIMOX (separation-by-implantation-of-oxygen) material is used primarily for low power IC application. The reliability of devices fabricated on SIMOX substrates is influenced by oxide degradation due to charge trapping, interface state generation, and bulk trap generation in SIMOX BOX. Also, the SIMOX BOX must be radiation hardened for defense and space applications. It is therefore necessary to precisely determine and control the densities and cross-sections of electron and hole traps in the BOX. Avalanche injection of charge is used to fill traps. High frequency capacitance-voltage (C-V) curves is used to measure and characterize the trapped charge.

University of the District of Columbia

Office of Grant Administration, MB 4810 4200 Connecticut Avenue, N.W. Building 48 Room 515, Washington, D.C. 20008. Telephone (202) 274-5597 Fax (202) 274-5264



December 3, 1997

Ms. Jennifer L. Bell
Post Award Specialist
U.S. Air Force Office of Scientific Research
110 Duncan Avenue (Room B115)
Bolling Air Force Base
Washington, D.C. 20332-8050
(Re:F49620-97-0516)

Dear Ms. Bell:

We refer to the currently awarded AFOSR grant, reference number F49620-97-0516, entitled, "Simox Evaluation Program". The University has experienced innumerable delays in getting the grant's spending authority established, relative to FY-1998, in the D.C. Government's Management System. These delays have materially affected our ability to successfully order and subsequently pay for the equipment specified in the grant. Therefore, a change in the grant's ending date, until March 14, 1998, is hereby requested.

Please feel free to contact me (on 202-274-5263) or Dr. Bhar, the project director (on 274-5836) concerning this matter.

Yours truly,

Mr. L.H. Barnes

Director, Grant Administration

Dr. Tarak Bhar Project Director

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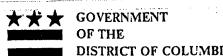


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